COMMUNICATION FOR TECHNOLOGY TRANSFER IN AGRICULTURE PROJECT
(AID/S&T 936-5826)

CTTA
INDONESIA
Secondary Food Crops Development Project:
Communication for Technology Transfer in Agriculture
Integrated Final Report

February 1988 - April 1990

This report summarizes the activities and plans completed during this period. Contributors include:

PRIME CONTRACTOR:
Academy for Educational Development

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AED

Contents

Glossary of Terms and Acronyms

APBD	*Anggaran Pendapatan dan Belanja Daerah*: Annual Local Government Budget (including both routine and development funding)
APBN	*Anggaran Pendapatan dan Belanja Nasional*: Annual National Government Budget
BLP	*Balai Informasi Pertanian*: Agricultural Information Centre
BLPP	*Balai Latihan Penyuluhan Pertanian*: Agricultural Extension Training Centre
BTP	*Balai Teknologi Pertanian*: Agricultural Technology Centre
Bupati	Head of a *Kabupaten Tk. II* (district) administration and thus senior representative of the president in the kabupaten
Dinas	A local government technical agency (i.e. *Dinas Pertanian Tanaman Pangan*: Food Crops Agriculture)
DIP	*Daftar Isian Proyek*: a Development Project budget allocation, naming the individuals responsible for the physical and financial execution of the project
DUP	*Daftar Usulan Proyek*: a Development Project proposal which becomes a DIP when it is approved as part of the national or provincial/district budget
KANWIL	*Kantor Wilayah*: Office of a central government sectoral agency situated at a provincial capital (designated *Instansi Vertikal*)
Kabupaten	Administrative district or subdivision of a province
Kecamatan	Administrative subdivision of a kabupaten
Keppres	*Keputusan Presiden*: Presidential Decree
KUD	*Koperasi Unit Desa*: Village Cooperative Unit
Pemda	*Pemerintah Daerah*: Local Government
Pimpro	*Pimpinan Proyek*: Project Manager
Pimbagpro	*Pimpinan Bagian Proyek*: Project Section Manager
SK	*Surat Keputusan*: written decision (decree)

tegal	Dry upland field
TkI/TkII	*Tingkat I/II*: First and Second Levels of autonomous local government, equivalent to Provincial or District (or Municipal) administrative areas
WKBP	*Wilayah Kerja Balai Pertanian*: Agricultural Centre Work Area
WKBPP	*Wilayah Kerja Balai Penyuluh Pertanian*: Agricultural Extension Centre Work Area

Executive Summary

This integrated final report of the Academy for Educational Development, Inc., Technical Assistance Team contains conclusions and recommendations gleaned from experience with the Secondary Food Crops Development Project/Communication for Technology Transfer in Agriculture (CTTA) Project during the past 25 months. It is hoped that this experience will prove useful for planning future activities in food crops development and communications.

The Technical Assistance Team draws the following principal conclusions as a result of its experience:

- The Government of Indonesia (GOI) is seriously committed to developing self-sufficiency in food crops production and to improving information flows for price and production forecasting.

- The time is right for the GOI to try to move away from the project approach to development and concentrate more upon providing services to farmers.

- Planning within the Department of Agriculture tends to be a top-down exercise. The Department should try to become more responsive to farmers' needs. This approach would be more productive than the current practice of implementing policies through assistance projects.

- The time allowed for technical assistance *vis a vis* the project terms of reference was too short and, therefore, unrealistic.

Should a similar project be contemplated in the future, the team recommends that funding for activities such as demonstration farms and other field activities be placed directly from the Annual Local Government Budget (APBN) into local budgets at the provincial and district level, and not distributed through the central budget of a line agency. Provision should, however, be made for the line agency to adequately monitor activities at lower levels.

The Directorate General of Food Crops Agriculture (DGFCA) would probably benefit from an in-depth organization and management study to ascertain what might be done to improve internal administration and decision making. This study should not be limited to existing administrative parameters but should make recommendations on a more flexible bureaucratic structure and deal also with inter-agency relations, management and staff development, long term training needs, and financial incentives. Management training appears to be one aspect of career development which has not had the attention warranted for DGFCA staff.

I. Introduction

This integrated final report of the Academy for Educational Development Technical Assistance Team to the Secondary Food Crops Development Project (SFCDP), through the Communication for Technology Transfer in Agriculture (CTTA) Project, comprises three parts: an executive summary; the body of the report subsuming a description of the administrative setting, individual consultants'reports, and a summary of lessons learned and recommendations; and a section of supporting appendices.

SFCDP began in 1983. Following an encouraging Midterm Evaluation carried out in 1986, the project was amended to provide $1 million in grant funds for policy research, short-term training, and technical assistance. In 1987, USAID/Jakarta converted $3 million from loan funds to grant funds to support technical assistance which had originally been planned under a loan-funded, host country contract that had proved difficult to both recruit and maintain. At the same time, it was decided that the project should include innovative communication and extension mechanisms. This provided the basis for, in 1988, buying into the CTTA Project.

CTTA provided technical assistance to the Department of Agriculture Directorate General Food Crops Agriculture (DGFCA) Secondary Food Crops Development Project from February 1988 until mid-April 1990. Funding for the communications pilot project, most of which was provided by USAID/Jakarta, was included with the GOI annual SFCDP project funding.

Four long-term team members were located with DGFCA Jakarta and one was posted to Malang, East Java, the site chosen for the communications pilot project. The length of the project was 26 months, with individual assignments varying from 25 to 15 months.

Short-term technical assistance was provided for a farm family survey; for training GOI communications staff; for studies of credit availability to farmers, biological nitrogen fixation requirements, and soil and water conservation in relation to integrated food crop farming systems; and on a training needs assessment for DGFCA.

II. Technical Assistance

A. Long-term Consultants

The AED technical assistance team consisted of five long-term consultants, four of whom were posted in Jakarta and one of whom was posted in Malang, East Java (Table 1). Appendix 1 gives a scope of work for each consultant.

Table 1. Long-term consultants provided by the CTTA Project, Indonesia, 1988-1990.

Consultant	Post	Period
David W. Brown+	Chief of Party Senior Economist	Feb 1988 - Sep 1988 Oct 1988 - Mar 1990
E. Edwards McKinnon+	Chief of Party	Oct 1988 - Apr 1990
Klaus Altemeier+	Econometrician/ Policy Analyst	Mar 1988 - Apr 1990
James W. Mangan*	Senior Communicator	Apr 1988 - Mar 1990
Brian R. Hilton+	Agronomist Communicator	Feb 1989 - Apr 1990

+ Posted to Jakarta. * Posted to Malang, East Java.

B. Short-term Technical Assistance

CTTA provided a substantial amount of short-term technical assistance to the GOI, most of it in support of the SFCDP (Table 2).

Table 2. Short-term technical assistance provided by the CTTA Project, Indonesia, 1988-1990.

Consultant	Area of Assistance	Length of Assignment (Months)
Daniel Ajamiseba	Training needs assessment	2
Peter L. Croke	Farm credit survey	3
Barbara L. Martin-Schiller	Farm family survey Communications training	3 1
Paul Singleton	Biological nitrogen fixation survey	1
Hoky Siregar	Food crops marketing systems	4
Gerald G. Williams	Soil conservation and farming systems	3

III. Administrative Setting for the CTTA Project

The CTTA buy-in from USAID/Jakarta placed project activities under SFCDP, which was managed under the Directorate General Food Crops Agriculture (DGFCA), which comprises seven Directorates. SFCDP/CTTA had greatest contact with the Farm Economics Directorate and, beginning in late 1989, the Extension Directorate.

SFCDP was a centrally-funded, USAID/Jakarta/Department of Agriculture project that was implemented in six provinces by the provincial and district (*kabupaten*) agricultural services and supervised by the DGFCA in Jakarta. The SFCDP/CTTA project director, Dr. Saroso, had long experience and many personal contacts within the Directorate General. This enabled him to facilitate CTTA activities in many ways.

IV. Long-term Consultant Reports

A. Chief of Party, E. Edwards McKinnon

Technical assistance provided to DGFCA by AED began with Dr. David W. Brown's arrival as chief of party in February 1988. He was joined by Dr. Klaus Altemeier, econometrician/policy analyst, in March, and by Dr. James W. Mangan, senior communicator, in April.

Representing the project to USAID/Jakarta and the GOI, establishing CTTA offices, choosing a communication pilot site, and conducting necessary logistical arrangements and procurement occupied the first few months of the project. As a result of these activities, the chief of party was located in the Project Management Unit Director's office, Dr. Altemeier was attached to the Directorate of Farm Business (BINUS), and Dr. Mangan was posted to the communication pilot site in Malang, East Java. (GOI funds to support pilot site (field) activities did not become available until August 1988, and were released in December 1988.)

At a mobilization review in May 1988, and following consultations with USAID, it was decided to redefine the unfilled farm economics position and revise the terms of reference for the econometrician (Dr. Altemeier). Dr. Brown assumed the farm economics position. A new chief of party, who had both USAID and Indonesia experience and familiarity with the GOI Central Government bureaucracy, (Dr. Edmund Edwards McKinnon) was appointed in October 1988.

Immediately following his appointment as chief of party, Dr. McKinnon accompanied the USAID project officer, Dr. Kenneth Randolph, and Mr. Mocharam Tajib, also of USAID, to SFCDP project sites in Lampung, East Java, and South Sulawesi. Immediately thereafter, he also visited the AED Washington, D.C., office for a briefing on AED policies and to familiarize himself with plans for project implementation.

On his return from the United States, he was soon involved in preparations for project planning for the last year of the project and assisted Dr. Saroso, Dr. Randolph, and Mr. Mocharam with the preparation of the Life of Project Plan for 1989-90.

Of the total annual budget of $573,712 (Rp. 1,018,626,000) allocated under PIL 93, which was signed on August 9, 1989, some Rp. 535,440,000 was allocated to activities funded through the central office. Of this amount, Rp. 170,500,000 was for direct payment as GOI had insufficient Rupiah funds to finance all proposed activities. The decision to include funding for CTTA activities under the direct payment category was to create major administrative problems for the pilot during implementation.

In addition to financial management, the chief of party was heavily involved in organizing and providing logistical support for the short-term consultants, all of whom provided valuable additional information to the main thrusts of the project. The training needs assessment undertaken by Dr. Ajamiseba highlighted the need for improved English language capability over and above technical capabilities at all levels of the bureaucracy. The studies on credit and conservation farming systems undertaken by Mr. Croke and Dr. Williams both pinpointed important factors essential to the success of future food crops development programs. The biological nitrogen fixation study undertaken by Dr. Singleton and the resultant training course in Thailand provided a timely foundation for the increased use of inoculant in the GOI legume crop program in 1990-91. The studies undertaken by Dr. Barbara Martin-Schiller provided essential data for the CTTA pilot project and training. Mr. Siregar's involvement allowed Dr. Altemeier to spend more time on analytical and organizational activities during his consultancy.

B. Senior Economist, David W. Brown

In early 1988, when CTTA Project technical assistance began, the SFCDP-USAID Project, as the Secondary Food Crops Development Project was known in the Department of Agriculture, was emphasizing two sets of activities:

- promotion of higher-yielding agronomic practices through demonstration farms (demfarms) in the pilot provinces of East Java, Lampung, and South Sulawesi; and

- macro-economic analyses to help guide national food crop price polices.

At that time, the plan was to continue these activities while adding CTTA-related components to:

- improve communications methods in food-crop extension, and

- improve food crops project management.

It soon became apparent that there was a missing link: addressing the micro-economics of food crop development in the context of integrated farming systems. This factor was seen as important for three reasons:

- Indonesia seemed to be moving into a stage in which agriculture would depend less on government programs and subsidies, and more on local initiatives;
- extension workers and progressive farmers would increasingly need to think in terms of economically viable whole-farm systems; and
- national policy makers would need to view policy proposals "from the bottom-up" and not just from "the top-down" as was the tendency in the past.

The director of SFCDP-USAID, the new USAID project officer, and the AED vice president (who led a mobilization-review of CTTA technical assistance plans in May 1988) shared this view and agreed to redefine the economist-policy advisor position to emphasize farm- and local-level aspects. (Consequently, the scope of the econometrician-marketing advisor was changed to include broader policy aspects.) Dr. Brown, the then chief of party (who had background in agricultural production economics and grassroots program planning), shifted to the micro-economics advisor role as soon as a new chief of party could be selected and on the job.

Between October 1988 and March 1990, Dr. Brown devoted most of his time to initiating activities related to farm-level economics. Dr. Brown was based with the Project Management Unit (PMU) office of the project director in the Food Crops Production Directorate at Pasar Minggu, where he continued to give assistance with general project matters. In addition, he helped evolve cooperative links with other counterpart groups, particularly the Food Crops Farm Economics Subdirectorate (Binus/Usahatani). This work was conducted in close cooperation with the SFCDP/CTTA econometrician-marketing advisor (Dr. Altemeier) and the CTTA agronomist-communicator (Dr. Hilton).

1. Farm-level Economics and Food-Crops Systems

The skills that seemed to be needed by Food Crops staff at both national and provincial levels related especially to:

- farm management analysis,
- farm family socioeconomics, and
- systematic diagnosis of local needs for developing food crop systems.

The approach adopted was to:

- build upon 1989-90 SFCDP-USAID activities and on going DGFCA Food Crops programs;

- work with and through Indonesian staff and

- emphasize improvements in skills and information that would have a lasting influence after SFCDP-USAID.

Three points of departure were used for farm-level socioeconomic activities:

- the SFCDP-USAID baseline studies proposed for the three new project provinces--West Sumatra, NTB, and NTT;

- the series of training courses for food crop development staff sponsored by SFCDP-USAID in 1989-90; and

- the BINUS Food Crops Farm Economics Subdirectorates's felt need to improve the cost-returns data base that was being used to guide national policy decisions.

In addition, the SFCDP/CTTA budget provided for several short-term consultancies. Two of these were fashioned to reinforce local food crops systems development: a review of options for improving access of small farmers to credit for food crop development and an exercise to stimulate attention to soil conservation aspects of food crop systems (Table 2).

2. Baseline Studies

Early in SFCDP, baseline studies had been conducted through university contracts in East Java, Lampung, and South Sulawesi. Their intent was to establish benchmarks against which to compare progress stimulated by the demfarms and other local SFCDP-USAID funded activities. A follow-up survey was completed in South Sulawesi in 1988. The exercise provided descriptive facts about samples of farmers.

When SFCDP/CTTA began in 1988, there were plans to conduct similar baseline surveys in West Sumatra, NTB, and NTT during the second half of 1988 or the first half of 1989. But Dr. Saroso, the new SFCDP/USAID director, correctly wanted the studies to provide a sound basis for formulating food-crop development strategies. He did not want them to be only instruments for impact evaluation. He also wanted to involve provincial officials, research and extension specialists, and university faculty so that they would learn from the exercise and become accustomed to working together on food crop matters. Table 3 shows events and technical assistance contributions related to the baseline studies.

Table 3. Events and technical assistance related to baseline studies, CTTA Indonesia, 1988-1990.

Dates	Technical Assistance Provided
Jun-Sep 1988	Brown prepared think-pieces and led discussion sessions to help SFCDP pinpoint baseline information needs and sources for designing food-crop development strategies in new provinces.
Oct-Nov 1988	Brown went with SFCDP/PMU staff to West Sumatra, NTB, and NTT to prepare terms of reference for the baseline studies, launch the baseline studies and other new SFCDP work, and visit proposed pilot sites.
Jan-Mar 1989	Brown helped SFCDP review and sharpen the baseline study proposals from Andalas University (West Sumatra), Mataram University (NTB), and Nusa Cendana University (NTT). Emphasis was placed on analyzing future potential and identifying constraints.
Apr-Oct 1989	Baseline studies were delayed for several months because of bureaucratic difficulties in completing GOI and USAID contracting procedures. Meanwhile, universities in NTB and NTT continued to design the farmer surveys.
Sept-Oct 1989	CTTA contributions to the three SFCDP short courses for national and provincial Food-Crops staff included attention to systematic diagnosis of local food crop potentials, obstacles, and program needs. This helped prepare food crops staff who were associated with the baseline studies to use them and to conduct simple studies of their own.
Nov 1989	Hilton and Brown went to NTB and NTT to help refine the farmer survey plans and stimulate attention to other data needs. Preliminary field-testing of the questionnaires was being completed. McKinnon went to West Sumatra for similar purpose but work on the questionnaire had not yet started.
Jan 1990	Following completion of the surveys in NTB and NTT, Hilton returned to help focus data analysis on information needs for improved food crop program design and implementation. Brown went to West Sumatra, found that the survey was not complete, and was able to stimulate more attention to action program information needs.
Mar 1990	Hilton went to NTB and NTT to participate in interagency reviews of the baseline study drafts and to stimulate discussion of implications for action programs.

It proved extremely difficult to move university/research emphasis from a non committal, descriptive approach to an action-oriented, analytical approach. Overall, the baseline studies still focused on farmer surveys and descriptive information. However, SFCDP/CTTA technical assistance did help sharpen thinking about study objectives and information needs and stimulate analysis that related more closely to food crop development programs. At the same time, Food Crops staff were exposed to "rapid-reconnaissance" methods that could be used to diagnose local problems and potentials in the future.

3. Training Courses and Workshops

Good use was made of SFCDP/CTTA team members in designing and conducting various short courses and workshops held in 1989 as cap-offs to SFCDP. Table 4 shows Dr. Brown's contributions to components related to farm management analysis and the economics of local food-crop development.

Table 4. Farm management components in SFCDP workshops, CTTA Indonesia, 1989.

Dates	Technical Assistance Provided
Jan-Feb 1989	Brown provided two days training on farm record analysis and farm planning in Lampung, East Java, and South Sulawesi; took part in the BINUS course series on computer use for economic analysis, and worked with provincial staff in preparing local case examples for use in the computer course.
Apr-Aug 1989	Brown worked with Dr. Saroso, other counterparts, and other CTTA team members to design the SFCDP course on food crop development to be held in Sept-Oct 1989 and helped prepare counterparts for teaching roles.
Sep-Oct 1989	Brown helped teach the SFCDP food-crop development course at training centers at Ciawi, at Bandar Lampung, and Malang. Participants from all six SFCDP provinces and national offices participated. Farm management analysis and field day practice in rapid reconnaissance of food crop potentials and needs were important components of this course series.
Dec 1989	Brown gave a presentation on how farm management information and analysis can help improve food crop systems, programs, and policies at the final SFCDP workshop for central government and provincial food-crop officials and specialists.
Jan 1990	Brown taught basic tools of farm management analysis at the annual SFCDP training course for local extension workers in South Sulawesi and encouraged them to include farm management in extension work with farm families. This was the first time that these subjects received emphasis at within-province training.

This farm economics training could only introduce the technical matter to the participants. The 1989 training did help launch farm-level economics as an integral part of food crop development activities. Several participants expressed interest in further developing their economics and farming-systems analysis skills. Unfortunately, there was not time for additional training to follow up these beginnings by helping course participants introduce farm management analysis and extension education into their work. It is hoped that food crops officials and donor agencies will include these aspects of the design in future projects and programs.

4. Improving the Food Crops Farm Management Data Base

The Food Crops Farm Economics Subdirectorate (BINUS/Usahatani) had for several years been collecting per-hectare cost-and-returns data for rice and palawija crops. But, its small budget allocation and lack of additional project funding prevented the staff from going to

the field. Data were consequently obtained through instructions to local extension workers without supervision from Jakarta. Unfortunaly, the group had no computers, data tabulation was slow, and there was no capacity to do spread-sheet, production-function, or linear programming analyses. Also, sampling and data quality were questionable, and the Jakarta staff had little firsthand knowledge of farming conditions in the source areas upon which to base their data interpretations and policy advice. There was a need to obtain more information about farmers' resource constraints and institutional settings.

The chief of BINUS/Usahatani (Ir. Sam Pakpahan) and Dr. Brown worked together to prepare for the SFCDP-BINUS farm management training courses in early 1989. This led to some fresh ideas about how the farm management data-gathering for use at national levels might usefully be combined with extension activities on record-keeping and farm budget analysis for farm families. By March they had developed a proposal for trying this on a pilot basis in the SFCDP provinces under additional special activity grant funds available from USAID.

Jakarta staff members were to be involved in the pilot field work in order to give them firsthand understanding of current farming situations and to develope case examples for a cross-section of situations for farm budgeting and linear programming analysis. The proposal also called for computerizing data tabulations in Jakarta and demonstrating how farm management analysis could be used to help plan food crop programs and policies.

The proposal was favorably received, but the pilot extension component was eliminated, and fewer localities were included in the sample.

Meanwhile, with low-key reinforcement by Dr. Brown, BINUS worked hard to plan the survey, questionnaire, and data analysis. The Farm Economics Subdirectorate teamed with the Food Crop Resources Subdirectorate (which deals especially with credit needs and resources) to involve 12 junior and three senior staff members.

In October 1989, the BINUS Farm Management Group received access to two computers. By late 1989, the regular data base and annual tabulations were being computerized, several staff were gaining proficiency in computer use, and the computers were proving valuable in meeting special information requests from high officials.

The SFCDP/CTTA sponsored survey was conducted in January-February 1990. Tabulations were underway by late February. Information obtained was from 360 farmers in 24 local extension areas (WKBP), each comprising two to five villages, within the six SFCDP provinces.

However, this farm-management thrust and technical assistance ended before there was an opportunity to demonstrate the usefulness of farm management analysis for policymaking, or ways in which farm management education for farmers might be handled. These activities would also have helped achieve better integration of the Food Crops farm management

work with Food Crops agronomic work, extension, outlook information, horticulture, and overall program planning.

The work did have important catalytic effects. The BINUS staff learned much about farmers' situations from participating in the field survey. The new data will not be quickly outdated and will enable them to make more realistic assumptions when doing analyses related to farmers' potentials and likely responses to policy changes. It appears that the BINUS farm economics budget may increase significantly in coming years. This will enable the subdirectorate chief to make improvements that incorporate the ideas that were discussed and tried under SFCDP/CTTA.

Perhaps the most important impact of the supplementary funding which supported this technical assistance is the spirit of fresh endeavor and teamwork in these two BINUS units. Planning and conducting this special activity together, and also acquiring computers, breathed new life into the units.

C. James W. Mangan, Senior Communicator

Malang, East Java, was chosen in 1988 as the CTTA pilot communication site. At the site, CTTA sought to refine a methodology for cost-effective communications interventions for transferring agricultural technologies to farmers in Indonesia. Because CTTA Indonesia was attached to SFCDP, technologies were to include (but were not limited to) secondary food crops, especially corn, cassava, soybeans, and other legumes.

1. Terms of Reference

The terms of reference for the Indonesia communications pilot were as follows to:

> Demonstrate the effectiveness and cost efficiency of alternate methods of technology transfer via mass communications and other techniques, involving:
>
> - design and implementation of low-cost effective communication-extension activities on a pilot basis in the East Java kabupatens;
> - monitoring of these activities and evaluation of the impact of the new technologies diffused under the project;
> - guidance to the Agronomist/Communication Specialist to design an appropriate and effective pilot intervention for technology diffusion in one or more of the new provinces, coordinating with the appropriate research institutes and counterparts.

2. Objectives

The objectives of the CTTA communications pilot in East Java were to:

- demonstrate cost-effective communications techniques for transfer of agricultural technologies in certain areas for a limited spectrum of important food crops including areas where corn, cassava, and soybeans are important crops;

- test communications techniques in areas representative of those which will be brought into production in the forthcoming Five-Year Development Plan, in particular dryland or upland areas that are: a) remote from agriculture commodity marketplaces and b) close to agriculture commodity marketplaces;

- test communications approaches among several different levels of farmers including:

  --wealthy, cash-crop farmers;
  --resource poor, subsistence farmers; and
  --moderately well-off farmers;

- train personnel from the Department of Agriculture in the communications approaches to be attempted.

3. Site Selection

Malang was chosen as the pilot site for the following reasons.

- Kabupaten Malang includes a spectrum of agroecologies and economic levels of farmers ranging from poor isolated farmers who farm poor limestone soil in an area with a relatively long and pronounced dry season; to somewhat better-off farmers who occupy young volcanic soils near good transport to Malang markets; to well-off farmers who plant vegetables on well-watered uplands. In neighboring Kabupaten Lumajang, farmers plant soybeans on *tegal* (dryland). CTTA was instructed by Indonesian Project Management to include such farmers in the target group.

- Ten private and two government radio stations in the Malang area make it possible to use mass media within the confines of the kabupaten.

- Malang has a range of agriculture institutions, including the Balittan Malang (MARIF) which conducts on-farm research in secondary foodcrops; the Balai Teknologi Pertanian in Lawang, which conducts some plant testing; and the

Dinas Pertanian in Malang. This research, carried out in several extension regions, made it possible to include reliable, locally pertinent information in CTTA messages.

- There are two BLPPs (agricultural training institutes) in Kabupaten Malang, making it possible to carry out training for wider dissemination of CTTA lessons.

Three extension regions were selected to represent the diverse agricultural conditions and population features mentioned above. The site was selected by June, 1988.

4. Developmental Investigation

The first implementation phase consisted of developmental investigation--studying farmers' situations and what might facilitate or constrain their adoption of new farm technologies. Dr. Barbara Martin-Schiller, an anthropologist experienced in rural Java, conducted a farm family study and the Center for the Development of the Social Sciences at Brawijaya University was commissioned to interview farmers in the three extension agencies chosen as target sites.

Gajahrejo village in Pagak Extension Region was chosen for remoteness and distance from markets. Pakisjajar village in Tumpang Extension Region was chosen for ease of access and proximity to Malang markets. Ledoktempuro village in Wonorejo Extension Region, Kabupaten Lumajang, was chosen because farmers planted soybeans on dry highland (*tegal*).

Developmental investigation surveys were conducted in local languages -- Javanese and Madurese; information was collected through individual and focus group interviews; and the resulting data base included more than 600 entries of purposive and in-depth information.

The farm family survey identified three important constraints to communicating with farmers:

- **Language.** Farmers were best approached through their local language (Javanese or Madurese), not the national language (Bahasa Indonesia).

- **Income levels.** Most farmers were subsistence farmers with little spare cash to invest in expensive technologies.

- **Media access.** Most farmers had only a radio, very few had television, and most villages had no electricity, thereby limiting the effectiveness of electronic mass media.

The farm family survey also revealed effective techniques for gathering information from Indonesian farmers. Although in-depth interviews were useful, focus groups appeared to be

most efficient for investigating what farmers wanted to learn from agricultural messages, for studying farmer preferences, cultural appropriateness of messages, etc.

Two other surveys contributed importantly to the developmental investigation:

- A radio listener survey by James Mangan, which identified the stations to which farmers listened and was used to determine which commercial stations to commission for programming.

- A kiosk (small agricultural shop that sells seed, fertilizer, pesticides, sprayers, etc.) survey by Lilik Qomaria showed what agricultural products were commercially available.

5. Radio Programming

Developmental investigation showed that radio would be a likely medium for getting information to farmers and that the Malang Institute for Research in Food crops (MARIF) and Dinas Pertanian, the provincial Agricultural Service Agency for Food crops were sources of information for dissemination. The two did not communicate regularly with each other. CTTA sought to link the two institutions through preparing and broadcasting a weekly radio talk show.

Serba-serbi Palawija (Secondary Food crops Potpourri) radio program was created. Ten-minute segments included discussions in the low Javanese (Ngoko) language between a MARIF researcher and an extension agent from Dinas Pertanian. Topics focussed on good practices for the present growing season and were based largely on the results of MARIF on-farm research.

Serba-serbi Palawija was aired five times weekly; twice each Wednesday by Radio Republic Indonesia, once each Monday and Friday by the Kepanjen local government radio station, and once each Tuesday by Radio Andalus, a private commercial station. As of this report, *Serba-serbi Palawija* has been on the air for just under a year. Fifty broadcasts have been produced and aired.

CTTA also produced a series of four-minute "mini-dramas" designed to convey general agricultural messages through short drama formats. For example, a mini-drama about pesticides featured a farmer getting sick and almost dying from drinking water from a pesticide can. It was originally planned to produce 50 mini-dramas in Bahasa Indonesia for use throughout Indonesia and in Javanese, for East Java. Twenty-three scripts were written and 16 were recorded in both languages.

Although no impact evaluation was conducted for either radio program, focus group interviews were carried out to elicit feedback from farmers about both *Serba-serbi Palawija* and the mini-dramas. Findings were used to fine-tune the programming.

6. Photonovels

In addition to radio, the farm family study identified photonovels as an appropriate medium for reaching farmers with agricultural information. Photonovels are similar to comic books, but feature photographs of real people and real scenes rather than comic strip characters. Pusat Kateketik (Puskat), a nongovernmental organization, was contracted to produce two photonovels -- one for the Pagak Extension Region and one for the Tumpang Extension Region.

The intention was to produce two, carefully targeted photonovels that farmers would enjoy reading and that would provide them with good advice about improved agricultural practices. To ensure that the story in the photonovel was appropriate, a farmers' group was asked to help develop the storyline. Puskat asked farmers what they liked and disliked about comic strips; drew, with farmers, illustrations of farm situations (erosion, pest problems, rising prices, etc.); and used puppets to find what farmers thought should be emphasized in the messages. Agricultural extension specialists also participated in this process.

A total of 12,000 photonovels were printed. 4,000 in low Javanese and 2,000 in Bahasa Indonesia for each extension region. These were distributed in market towns on market days to farmers who were returning home. They were also distributed through the extension service to farmers' groups.

To evaluate the effectiveness of the photonovels, a sample of approximately 100 people in each extension region were tested as their retention of information in the booklets. There was an increase in correct responses for each of the ten questions asked. These results are discussed in an article entitled *Photonovels for Agricultural Communications in East Java: An Assessment of Impact*. They received a pretest before being given the photonovels, and a post-test one month later.

7. Calendars

Perhaps the most interesting and possibly the most significant communication approach tried by CTTA was the production and distribution of calendars -- full-sized, highly-illustrated, four-color calendars with targeted and timely agricultural information -- for each of the three extension regions.

The look and content of the calendars was developed in a workshop that included participants from the extension services in the three extension regions, MARIF, and from the kabupaten extension office. Participants chose three illustrations from each month. As with the radio programs, the workshop brought together MARIF researchers and Agricultural Service Agency staff to solve a real agricultural problem.

Three calendars were produced, 6,500 each, targeted to the needs of the respective extension regions. The calendars were distributed on farm market days, through farmers' groups, and directly from the project vehicle as it drove through villages.

8. Posters and Folders

The final CTTA media effort involved poster production and distribution. CTTA found that extension agents gave recommendations in terms of kilograms of fertilizer per hectare. But most farmers till only a fraction of a hectare and do not have a scale or a calculator with which to make the appropriate measurements and conversions.

To deal with this problem, CTTA developed a poster showing the correct dose of fertilizer in a tablespoon, so farmers could apply the right amount per planting hole and at the right time. Seven thousand posters with this message were produced and disseminated to all six SFCDP provinces.

In addition, two other posters and a leaflet were produced for the FAO-managed National Integrated Pest Management Project in Yogyakarta, which also receives substantial funding from USAID. The first depicted soybean pests and their natural enemies. The second showed how to fertilize and harvest soybeans correctly. A folder was also produced that showed soybean pests on one side and their natural enemies on the other.

9. Transferring CTTA Lessons Learned

Two workshops were held to disseminate lessons learned through CTTA activities.

The first, in November 1989, was attended by participants from the six SFCDP provinces. The workshop focused on radio programming techniques, photonovels, and assessing visuals such as posters. Participants included staff from the Agricultural Service and Information Agencies who produce extension materials, and other agricultural extension professionals who are involved in producing and disseminating agricultural communications materials.

The second workshop took place in March and sought to showcase the CTTA pilot products and lessons for decision makers. Participants included the heads of the Agricultural Service Agencies from the six SFCDP Provinces, the Agricultural Information Agencies, and Bimas; high-level officers from the Extension Training Section of the Department of Agriculture; and others.

The goal of the workshop was to show the CTTA results and products and to give the participants an opportunity to create ad hoc working groups in their provinces that might cut through the organizational and funding barriers that are obstacles to cooperation among the various departments of the Department of Agriculture.

10. Impediments to Carrying Out the CTTA Pilot

Three obstacles were encountered in developing the CTTA pilot project in East Java. The first, which was to obtain permission to do the work, absorbed much time.

For example, it was necessary to get Department of Social Politics (Sospol) approval to do research for the developmental investigation phase and throughout the project to get formative evaluation of media. The initial process took more than a month because the Department of Agriculture Service Agency at the Province level did not know how to do it, and was moreover somewhat reticent to approach Social Politics. Permissions had to be renewed every three months.

Permissions were also required from within the Department of Agriculture. For example, the Kanwil had to issue a letter permitting the Agriculture Service Agency to work together with MARIF to produce the radio shows because research stations are expressly prohibited from having a role in extension.

The second obstacle was the difficulty of executing contracts with private contractors through the GOI. This was exacerbated by a split in responsibilities within the Directorate General of Food crops. Technical matters are handled by the Project Management Unit and financial disbursement are unified under a Pimbagpro who answers directly to the Director General. Thus, disbursements are not in the hands of the technical project managers.

The third, and most serious, impediment was a result of inadequate funding from the Department of Agriculture to fully fund loan-supported activities. Because funds were not in the account of the Directorate of Food crop Production, Indonesian Project Management asked USAID to place the CTTA communications materials budget in the "direct reimbursement" category, which provided for reimbursement from USAID on receipt of proof of expenses paid. For example, this required, a printer to furnish the GOI with signed documents attesting to receipt of payment before payment was made.

The USAID decision to have all communications pilot inputs paid for through the GOI disbursement procedures rather than directly through the technical assistance budget resulted in delays of as long as eight months to get the money to do the work.

D. Klaus Altemeier, Econometrician

1. Background

In 1986-1987, BINUS, the Directorate for Food crops Economics in the Ministry of Agriculture, obtained assistance from the SFCDP Project and during the following three years conducted two intensive studies -- a supply and demand study, and a price and quality study. Before completing the second study, assistance of the SFCDP Project was extended. One of the SFCDP consultants obtained a permanent office in the market information

subdirectorate and, according to a project amendment released by USAID/Jakarta, more SFCDP activities and money were allocated to BINUS.

Finally, in 1989, the MOA decided to use funds from several USAID-financed projects to support economic research activities conducted in cooperation with Iowa State University's CARD Project. Some of this money was also allocated to research activities coordinated by BINUS. It is important to note that during the last two years the focus of activities was shifted from the Market Information Subdirectorate to almost all other BINUS subdirectorates. This was the result of the consultant team's active role in identifying specific and useful activities for BINUS as a whole and BINUS' responsiveness to the consultants' efforts.

2. Work Agenda

The econometrician's first task, in March 1988, was to complete the price and quality study mentioned above. The study consisted of two parts, the first on rice and the second on secondary food crops. The first part was written by Dr. Steve Tabor, except for the sections dealing with econometrics and mathematical formulae, which were written by Dr. Altemeier.

The consultant's second task was to design, conduct, and monitor an economic training program to transfer the results of the price and quality and supply and demand studies to staff of the MOA and related government agencies. In this context, BINUS conducted 14 training sessions at the central level and in six provinces. From May to September 1988, the consultant prepared these training courses, which were documented in several books and materials published by BINUS. He also conducted econometric training sessions in BINUS for staff from different MOA agencies. For this, training materials were directly taken from the supply and demand study data bank.

A third task was to rehabilitate and improve the existing market information system. For this, the project hired Mr. Hoky Siregar, a former staff member of the Market Information Directorate, now a private consultant. Siregar is a management system specialist with significant experience in development projects in Indonesia. He conducted most of the field work which Dr. Altemeier focused as a market outlook system at the central level. As a result of this work, BINUS began publishing, in January 1990, a Quarterly Market Outlook Report.

The fourth main task was to update and simplify the existing BINUS supply and demand model. This was an ongoing activity documented by working papers and publications. One of these papers showing the simplified model structure will be published in London University's journal, *Applied Economics*, in 1990. This version also demonstrated how to endogenize prices which were initially treated as exogenous model variables. A draft of a completely updated BINUS supply and demand model will be finished by the end of the project. The BINUS counterparts will be able to use this model for policy analysis and to conduct updates if supported by university staff. Links between BINUS and Gadjahmada

University in Yogyakarta, which were recently forged as a result of policy makers' increasing interest the model, will help sustain this activity.

Other activities conducted in cooperation with CARD were a Fertilizer Subsidy Study and an area and input projection for food crops agriculture. Work conducted in cooperation with CARD is documented in working papers in CARD's *Policy Briefs* series. The results of the Fertilizer Study likely will also be published in a regional journal.

3. Non-technical Problems in Cooperation

A difficulty arose regarding differences in understanding and interpretation of project goals. The econometrician hoped to train a small group of people from different government agencies to update, revise, and run the supply and demand model at the central government level. However, Indonesian counterparts wanted to train staff from various government agencies in all SFCDP provinces and at the central level.

They did not realize that computer skills and a strong mathematical background are needed to understand applied economics.

Therefore, the focus shifted to computer training for less skilled staff and to teaching in applied economics for qualified staff at the central level. Unfortunately, even central level participants were not always able to follow the course because participant selection was not consistent. Attendees were selected by the heads of the institutions invited to participate in the courses. Their criteria necessarily included factor besides participant's skills.

Inflexibilities in both the USAID and GOI administration, also made the expansion of market information outlook activities to important provinces like Central Java very difficult. Extra funds from non-SFCDP sources had to be raised to include Central Java--a province that accounts for 30-40 percent of total secondary food crops production in Indonesia.

4. Conclusion

Despite these difficulties, the continuity achieved in developing and maintaining the market information system to this point, beginning with the early GTZ project, will contribute to its long-term sustainability. In addition, through their newly acquired skills, BINUS staff are now much better equipped to address economic and policy issues and thus serve the agricultural and secondary food crops sectors.

E. Brian Hilton, Agronomist-Communicator

The CTTA agronomist-communicator served in Indonesia from February 1989 to April 1990. He was attached to the PMU under the Director General for Food Crops in Jakarta. Major

responsibilities of the post included providing support to demonstration farms, extension worker and farmer training, the communication pilot project, baseline studies, and cropping trials.

1. Demonstration Farms

The terms of reference called for the agronomist-communicator to:

> . . . coordinate on-site communication/extension implementation activities with Indonesian collaborating agencies and personnel and advise on agronomic problems related as needed at his field site and throughout the project.

One GOI goal for its current five-year plan is to substantially increase production of secondary food crops, with emphasis on cassava, soybean, mungbean, maize, and groundnut. SFCDP, which began in 1983, used demonstration farms (demfarms) as the major means to spread technology. Most Indonesian farmers are organized into farmers groups, and past projects had successfully increased rice production by using selected farmers groups as demfarms. The approach assumed that if new and appropriate technologies were introduced to farmer groups, farmers would use the technologies and they would quickly spread to surrounding areas because of their visible success.

SFCDP initially selected farmer groups by district agricultural extension offices in three provinces; East Java, South Sulawesi, and Lampung. Each province operated in one to five districts (kabupatens). Each district supervised two to ten demfarms. Each year, at least two new demfarms were started in each district.

Various criteria, often differing between districts, were used to select farmer groups. Some districts selected farmers in areas that are exclusively planted to secondary food crops, some selected groups of poorer farmers growing secondary food crops, some selected more progressive farmers, etc. Farmer groups were enticed into the program by the promise of inputs which were to their benefit, including the offer of recommended varieties of seed, fertilizer, pesticides, hand sprayers, and simple non-motorized machinery. Under the plan, member farmers receive the inputs but must pay back the fertilizer and seed inputs at interest rates set by the farmer group.

This money was deposited in a revolving fund that was used the next season and which should have increased each year, thus allowing more farmers to join the demonstration farmers' groups. Baseline studies were conducted in each province before demfarms were initiated. Cropping patterns, fertilizer rates, pesticide rates, and other technologies were studied at experimental sites in each province the year before the demfarms began. Extension agents whose jurisdiction included demfarms received special training from the district office to enable them to better serve the farmers' groups.

Local extension agents were generally high school graduates, not necessarily from farm backgrounds, who received some special training at the beginning of the job. Their duties included advising 20-40 farmers' groups in the district (which meet monthly), attending extension service meetings, and other activities.

None of the technologies were "forced" upon the farmers. The program was designed so that farmers within the group would receive instruction and perhaps some social pressure, from either the group leader or the extension agent, to adopt the new practices.

a. Revolving Funds

Farmers reported that the primary reason that they joined a farmers' group was to receive credit or benefits from the revolving fund. Although credit was generally available through local money lenders, interest rates were roughly 60 percent per year. Credit through farmers' groups was less expensive. The groups could collectively make major purchases of machinery (such as hand tractors) at lower cost than were available for individual purchases.

However, rather than build the revolving fund, most farmers' groups chose to give their members low credit rates, averaging 10-20 percent per year. Revolving fund amounts remained static or increased only slightly. With new group members, demand for credit was fairly constant for small loans for seed and fertilizer. Funds for major purchases such as tractors or irrigation pumps were unavailable. Many felt that more pressure should have been put on farmers' groups to charge higher credit rates in order to increase the fund and have money for major purchases.

Many of the revolving funds probably never existed. Indonesian farmers have a poor record for repaying government programs. Farmers kept meticulous books but the money was never collected after the first year. They felt that the inputs were a payment for the risk they incurred by signing up with the program. Indeed, many farmers lost money when production inputs were late arriving.

b. Cropping Patterns

Many farmers said that access to improved cropping patterns attracted them to the demfarms. Most of the cropping patterns were a mix of intercropped cassava, maize, and legumes. Cassava was popular with poorer farmers because it was seen as insurance against hunger if other crops failed. Intercropping was also popular because it reduces risk. Wealthier farmers preferred monocropping. Farmers who worked seasonally also preferred monocropping with cassava because of the low labor requirement. Cropping patterns were flexible so that if a group wanted to try a different pattern it could design its own pattern with the help of an extension agent.

New crop varieties met with mixed acceptance. Poor taste was a negative factor of several hybrid maize varieties that were introduced. Nonetheless, farmers were still somewhat

enthusiastic because hybrid maize gave yielded surpluses that could be sold. Improved, open-pollinated maize varieties were fairly popular. Their taste, yield, and storage properties seemed intermediate between those of hybrid and local varieties.

The most successful of the introduced crops were open-pollinated, early maturing mungbean and soybean varieties. The seed often had different properties from local seed (color, size) but markets for it developed quickly. Farmers appreciated early-maturing varieties because of the flexibility they provided, even if they yielded proportionally less. Often, seven to ten days make the difference between success or failure of crops planted at the end of the rainy season.

c. Machinery

Simple, non-motorized machinery was not well received by farmers. Hand-operated machines such as maize shellers, peanut and soybean threshers, and cassava slicers were usually rejected because they saved only a little time and were considered odd by farmers. Women sometimes rejected machinery because the noise interfered with their conversation with other women or because only one person was required. Women enjoyed postharvest operations as social events. Men were interested in motorized equipment.

d. Extension Agents

Demfarm's success often depended on the quality and activity of the local extension agents. Extension agents' (PPLs) visits to demfarms were often limited by:

- lack of transportation or expense money for field visits,
- distance and poor road conditions, and
- lack of time because of other duties.

Some demfarms rarely received PPL visits. Some PPLs did not know where the demfarms were in their district.

The ability of extension agents was also a factor. A poor (or low ability) farmers' group paired with. Produced a less successful demfarm. teamed with an extension agent with below average ability and activity. These farmers were not helped to understand and properly apply the new technologies. Many of the richer, more progressive farmers were able to successfully use the new technology despite inactive or low ability extension agents.

Local extension agents saw their primary duty as teaching the farmers. They rarely visited the farmers' fields. As a result, many extension agents lacked practical experience. For example, many farmers' groups did not follow the package recommendations with regard to fertilizers and pesticides. Often fertilizers were not applied, applied at the wrong time, or improperly placed. These mistakes might have been overcome by closer extension agent supervision. Extension salaries were low, which decreased motivation.

e. Project Successes

Many farmers needed only a bit of inspiration, a bit of capital, or a bit of know-how to increase both production and income. The most successful demfarm increased the revolving fund four-fold in five years.

Cropping patterns were a success. In East Java, farmers actively chose the crops to emphasize in the cropping pattern. Also, many cropping experiments were conducted close to demfarms and partly managed by the farmers. These experiments were viewed with interest by both demfarm participants and nonparticipants.

f. Project Problems

Late arrival of packaged inputs, seed, pesticides, etc., severely hindered demfarm success. Most of these delays were caused by government bureaucratic procedures. Farmers who experienced late package arrival sometimes planted several weeks late. This almost assured that one crop would be poor or fail.

Reliable supplies of hybrid seeds were difficult to obtain. Because villages in remote areas had no distributors of hybrid seed, they often returned to traditional varieties after one year. Later in the project, demfarms were enlarged from 5 to 25 hectares with the hope that farmers would be better able to buy and market seed. Many demfarm inputs were not available to neighboring farmers. Why should a farmer be interested in a demfarm if he cannot obtain similar inputs?

Demonstration farms with secondary food crops were not nearly as easy to develop and manage as those with rice. Up to 30 crops comprise secondary food crops. The task of spreading rice technology is simpler than it is for secondary crops, for which cropping patterns, use, processing, and markets are more complex and vary widely among districts.

g. Technology Spread

Technology spread generally was measured by growth of farmers' groups or number of new participants. This number averaged about 60 percent per year but was deceptive. New participants joined more for the revolving fund than for the transfer of technology. Farmers' groups also may have been encouraged to enroll more members through pressure from local officials. It was interesting to note that even demfarms that were failures (crop failure and depleted revolving funds) had increasing enrollments. There was little evidence of technology spread except for the soybean variety *Tidar* in East Java.

Many technologies were not uniformly practiced by demonstration farmers. Technologies such as planting soybean in rows versus broadcasting were often practiced by some farmers within a group and ignored by others. Those that did not practice the new technologies were either too busy to spend the time to plant in rows, weren't convinced of the possible

increased returns, or were not well monitored by either the head of the group or the extension agent.

To be a good illustration for other farmers, demonstration farms must be very successful. Many SFCDP demfarms were not sufficiently successful to attract the attention of neighboring farmers; some were failures.

h. The Ideal Demfarm

Following is an example of an "ideal" demfarm. The farm was started in 1973 through a project for irrigated rice. The original group of ten farmers with five hectares of farmland has grown to 105 farmers and 95 hectares. In 1989, the farm contracted 350 tons of rice to the government. The group does its own milling with two rice hullers and a maize sheller, has four tractors, is buying more land, has hired a full-time employee to contract and fix machinery, and some members receive up to U.S. $60 a year in dividends. The original loan has grown 22-fold in 15 years.

How did they do it? This farmers group consisted of very able, highly motivated farmers. They received a tractor as a grant and a rice huller at no interest -- two pieces of equipment they really needed. The extension service received motorcycles and travelling money and PPLs were often at the site (both the local extension agent and a district field team). The farmers attributed their success to supervision by agricultural extension workers, motivation, discipline, and honesty.

The essential components of a successful demonstration farm are:

- a local extension worker who is active at the demfarm site;
- motivation of farmers within the group, honesty, discipline, positive spirit, etc.;
- timely arrival of the technology package;
- a suitable cropping pattern for the area;
- continued availability of hybrid seed and improved open-pollinated varieties; and
- farmers who derive most of their income from food crops and who do not work seasonally at factories.

2. Trials

The terms of reference called for the agronomist-communicator to:

> . . . collaborate at the provincial level with SFCDP advisors and their counterparts in studies and activities that contribute to identifying and assessing technologies to be disseminated to farmers through mass media and conventional extension channels (including private sector channels) taking into consideration the technology's biological and/or other potential and local adaptation; policy, infrastructural, and socioeconomic factors; and farmer characteristics and constraints.

It was intended that agricultural research in each province would identify new cropping patterns and technologies that would be disseminated to farmers through the demfarms. Regional research stations such as MARIF and MAROS, the provincial agricultural extension service, and one university conducted the experiments. Regional research stations were the preferred institutions, but were not located in all provinces and did not have the resources to conduct experiments on relatively short notice.

MARIF, in East Java, and MAROS, in NTT, did the best jobs of selecting improved cropping patterns and conducting appropriate experiments in which farmers had important input. MAROS in SulSel also developed some good cropping patterns. Experimental results from other institutions were not as good because the organizations did not have the expertise and experience of MARIF. Because of this lack of experience many of the experiments were unproductive and wasteful. Some demfarms were started without experimental results because the trials were poor. Also, funds for trials often arrived late, causing a job to be rushed and results to be available.

Almost all research into new technology (other than improved cropping patterns) focused on growth promoters. These growth promoters were regarded as dubious by U.S agricultural scientists, and the research was unproductive.

Of the six provinces, only MARIF, East Java; MAROS, NTT; and MAROS, SulSel, conducted effective cropping pattern trials that were later implemented in demfarms. These trials resulted in improved cropping patterns in East Java and NTT. Research in other provinces was largely ineffective. A primary constraint to effective research was lack of technical ability and training for those institutions that carried out the research. In addition, the usefulness of trials was limited by late arrival of funds, poor choice of research agendas, and shortage of supervision.

3. Training

The terms of reference called for the agronomist-communicator to:

> . . . help plan and conduct in-service training for collaborating institution staff.

Training was a CTTA/SFCDP success story. CTTA staff were able to work closely with their Indonesian counterparts, and timely arrival of funds was not so great a constraint as it was in other facets of the project.

Training topics were chosen based on needs determined by provincial extension offices. A CTTA short-term training needs assessment. [planned and implemented] Other activities were planned by CTTA and implemented by counterparts, with occasional assistance from CTTA staff. Training was also used to distribute tapes of mini-dramas and other communications materials to participants. The rapport developed with the participants was invaluable. Staff met many of the trainees during field visits and were able to build on those relationships and therefore work more efficiently in the provinces.

Much of the training effort was devoted to developing a two-week short-course called *Palawija Terpadu*, Integrated Secondary Food crops. Promising, mid-level Department of Agriculture personnel from central, provincial, and area offices were chosen as participants. It was felt that a broad exposure to agricultural economics, agronomy, communications, and management would widen the perspective of participants and help them think in terms of farming systems rather than individual units. In addition, farmer risk was a central theme to the course. The course examined why farmers choose methods of farming which are relatively unprofitable and how some government programs unwittingly put the farmer at greater risk. *Palawija Terpadu* was held three times: in West Java, where most participants were from the central Department of Agricultural offices in Jakarta; in Lampung, for workers from Lampung and West Sumatra; and in East Java, for participants from Sulawesi Selatan, East Java, NTB, and NTT. Ninety-five Department of Agriculture personnel attended the course.

The training also include a train-the-trainers component. Most courses were co-taught by CTTA staff and local counterparts. CTTA staff focused on helping their counterparts to teach the course by supplying technical information and by showing the teachers how other disciplines interrelate. For example, the soil conservation course included attention to economics and explored why some conservation programs are not economically viable. A field trip was arranged that gave the participants a chance to do a rapid reconnaissance survey and to design their own program to help area farmers. The following day, panel discussions were held in which participants and teachers played roles and questioned each team's field assessment and planned agricultural improvement programs.

Participants were also familiarized with two computer simulation programs, one on soil conservation and the other on linear programming. The soil conservation program developed into a competition between teams of participants to determine who could be the farmers with the most profitable farming system and the least soil loss. These exercises were very useful, especially considering that many of the participants from the kabupaten level had never before used a computer.

4. Communication Pilot Project

The terms of reference called for the agronomist-communicator to:

> . . . work with the senior communication specialist on the design, initiation, and evaluation of the Malang pilot site and participate in selecting and drafting agricultural technology messages for dissemination through the selected communication channels and in the pretesting of those messages and materials.
>
> Streamline the CTTA communication model for dissemination within the MOA and prepare appropriate training materials. Lead in developing a training and dissemination plan for institutionalizing the communications model within the MOA; 1) conduct a workshop for kabupaten and provincial level officials; 2) visit selected provincial and kabupaten sites to assess local situations and prospective trainees; 3) conduct follow-up visits to selected provinces after the training workshop to monitor and support the implementation of the CTTA model by trainees. Help institutionalize the improved communication support program developed and tested in the pilot communication activities, and its systematic adaptation and expansion to other kabupatens and provinces included in the SFCDP.

The communication pilot project represented another CTTA success in Indonesia. The pilot put farmer needs as its first priority and provided agricultural extension staff with a useful example of a farmer-sensitive extension project. Although there was not enough time to evaluate impact, farmers did actually receive appropriate extension materials, which rarely occurs under the present system. Photonovels received much praise from both farmers and agricultural extension agents.

In addition, a slide set on soil conservation was developed through close cooperation with the extension directorate. This cooperation and participation of several extension personnel in the communication courses brought about many positive results in terms of adopting farmer-sensitive communication methods.

It was originally envisaged that the agronomist-communicator would coordinate a provincial version of the pilot project. This did not develop. Instead, the Agronomist-Communicator

was posted in Jakarta, with short-term communication activities in both Lampung and Sulawesi Selatan.

5. Baseline Studies

The terms of reference called for the agronomist-communicator to:

> ... maintain strong communication and coordination with team members and host country nationals on related assignments.

The agronomist-communicator visited NTT and NTB several times to assist with the planned baseline agricultural studies, and CTTA staff attended seminars in all three new provinces, including Sumatra Barat. Delays in contracting with provincial universities and late arrival of money caused these studies to be done after demfarms were initiated rather than before. It is difficult to predict the outcome of the final reports. NTT and Sumatra Barat rushed their seminars because of time constraints imposed by the project closing date and presented materials before they were ready. NTB performed especially good work in collecting and analyzing the data. CTTA was able to influence how the analyses was done in NTT and NTB, making these studies more useful.

The baseline studies could have been much more useful had they been conducted in a timely manner, although they likely still will be useful to future projects and/or have an impact on current agricultural extension programs. The studies uncovered important information and provided good opportunity for staff development at Cendana University (NTT) and the University of Mataram (NTB).

6. Other Major Activities

The agronomist-communicator also participated in short-term studies of BNF technology, credit availability, and soil conservation; collected data for the CARD fertilizer-crop production impact study; acted as liaison with NGOs such as World Vision, Care, and Sadogori; and worked with USAID Uplands Project.

Appendix 1
Scopes of Work for Long-term Field Advisors

Dr. David W. Brown
February 1988 - March 1990

The senior economist's specific duties and responsibilities include, but are not limited to the following.

- Bottom-up Program and Policy Analysis. Help SFCDP planners develop a rapid method for identifying farming adjustment potentials and program-assistance needs in a cross-section of local situations, as a basis for formulating and assessing province/national program and policy proposals. (60-70% of effort devoted to this area.)

- Improvement of national-local Palawija support systems. Help national-level specialists and short-term consultants perform systematic diagnoses leading to workable approaches for meeting specific program needs -- e.g., seed systems ... crop-livestock interfaces ... crop storage ... farm management and finance education ... more local commercial involvement ... post-harvest processing ... local utilization and nutrition. (Limit assistance to no more than two of these)

- Overall Palawija Planning. Help national and provincial officials with overall formulation of future Palawija program plans, especially delineation and assessment of major action alternatives.

Dr. E. Edwards McKinnon
October 1988 - April 1990

The chief of party's specific duties and responsibilities include, but are not limited to the following:

- Coordinate all project activities with Indonesia collaborating agencies and personnel; and, as appropriate, with USAID and other donor projects.
- Supervise and coordinate activities of all long- and short term technical assistance personnel provided under the project.
- Identify short-term technical assistance needs and inform the home office, with sufficient lead time for recruitment and processing.
- Assist the project implementation unit and USAID/Indonesia in establishing or improving financial, information, and other management systems and procedures, to meet A.I.D. financial management and reporting requirements and to improve overall project management. To assist in these tasks, he will establish a computerized management information system which will be used to monitor project activities and to meet AID and GOI financial management and reporting requirements.
- Participate in planning, implementing, monitoring and evaluating Project activities including preparation of a detailed annual work plan.
- Maintain regular, close communication with USAID/Jakarta, keeping the Mission fully informed of project activities and progress and of existing or anticipated problems or constraints or unresolved issues that have negative (or positive) implications for project performance.
- Prepare and submit high quality regularly scheduled reports (including financial reports) on time as specified in the Project Implementation Plan, into which are incorporated reports from all short- and long-term technical assistance personnel.

Administrative Responsibilities:

- Establish, staff, equip, and maintain an AED project field office.
- Maintain a project imprest fund for disbursements and accounting of all in-country expenditures.
- Employ and supervise authorized local hire administrative and support staff.

- Schedule and make logistic arrangements for short-term consultants provided under the project.

- Manage local procurement in accordance with AED and A.I.D. policies and regulations.

- Maintain regular, close communication with AED home office, reporting directly to the CTTA project director and associate director, and others as necessary and directed.

- Contribute regularly to project reports, documentation and diffusion activities, and to professional papers.

- Serve as the senior in-country AED representative for agricultural programs.

Dr. Klaus Altemeier
March 1988 - April 1990

The econometrician/marketing specialist's specific duties and responsibilities include, but are not limited to the following.

- Update and extend the agricultural sector model for use in routine planning and policy analysis by concerned GOI agencies.
- Conduct studies on the economic viability of demonstration farms.
- Analyze the economic viability of mass media interventions.
- Assist in conducting and analyzing marketing studies in project provinces.
- Assist in planning new studies as needed and build appropriate econometric models to conduct the analyses.
- Participate in the process of building and developing collaborative linkages with concerned GOI agencies.
- Assist in developing qualitative response models as part of the price and quality study.
- Develop analytical models for analysis of comparative advantage through examination of factors such as effective rates, rates of protection, domestic resource costs, etc.
- Develop a trimesteral forecasting model for food crops supply to generate data for a market survey information report.
- Assist in transferring the food crop supply/demand model to Bulog and Bappenas for their use. He will also provide instruction to the analysts of the two agencies in the use of the model.
- Providing training in econometrics and quantitative methods to analysts in cooperating GOI agencies.
- Assist the COP and the CTTA Project Director in meeting the technical, administrative, and financial reporting obligations of the GOI and USAID/Indonesia as related to his own work.

Dr. James W. Mangan
April 1988 - March 1990

The senior agricultural communication advisor's specific duties and responsibilities include, but are not limited to the following.

- Coordinate project communication and extension implementation activities with Indonesian collaborating agencies and personnel.
- Maintain regular, close communication with the chief of party.
- Participate in selection of the kabupaten(s) in which the pilot communication activity will be implemented, assuring that they meet established site selection criteria.
- Identify short-term technical assistance needs in consultation with the COP.
- Provide technical supervision and guidance to the agronomist/communication specialist.
- Provide leadership to the development of improved networks and feedback mechanisms for strengthening research/extension linkages through effective use of communication.
- Provide leadership in planning and implementing a pilot communication program in East Java to develop, test, and demonstrate the integrated use of multi-channel communication strategies to increase the coverage and impact of technology transfer programs. (Elements of social marketing and behavioral science will be used as appropriate in designing and conducting the pilot activities).
- Prepare an annual Integrated Action Plan (IAP) for continuing development and implementation of communication strategies and multi-channel communication interventions -- mass communication (radio, TV, printed materials, etc.), demfarms and other demonstrations, interpersonal contacts by extension workers (work with contact farmers and groups), and private sector channels -- and farmer and communication-related staff training; with the first IAP to be submitted no later than four months after arrival of the advisor at post.
- Participate in planning, conducting, and evaluating communication/extension-related in-service training for collaborating institution staff.

- Assist in reorientation of relevant units as needed to integrate effective communication support into technology develop*ment and transfer programs.

- Collaborate with SFCDP advisors and their counterparts in studies and activities that contribute to identifying and assessing technologies to be disseminated to farmers through mass communication and conventional extension channels (including private sector channels), taking into consideration the technology's biological or other potential and local adaptation; policy, infrastructural, and socioeconomic factors; and farmer characteristics and constraints.

- Coordinate pilot site communication/extension implementation and formative evaluation activities with those specialists responsible for summative evaluation.

- Provide leadership to institutionalization of the improved communication support program developed and tested in the pilot communication activities, and its systematic adaptation and expansion to other kabupatens and provinces -- beginning in those included in the SFCDP.

- Coordinate activities of and provide technical support to specialists providing short-term technical assistance in agricultural communication/extension and related disciplines.

- Review implementation progress and report same regularly to the Extension Directorate and, through the chief of party, to GOI, USAID/Indonesia, and AED, including submission of regularly scheduled reports as required.

- Regularly contribute to project reports, documentation and diffusion, and write for professional publications under the project.

- Participate in an annual CTTA Project seminar for field site directors, together with the agronomist/communication specialist and national counterparts of both.

Dr. Brian R. Hilton
February 1989 - April 1990

The agronomist communicator's specific duties and responsibilities include, but are not limited to the following:

Under the direct supervision/coordination of the chief of party and working with other team members as necessary, the agricultural communication specialist will:

- Coordinate on-site communication/extension implementation activities with Indonesian collaborating agencies and personnel.

- Maintain strong communication and coordination with team members and host country nationals on related assignments.

- Work with the senior communication specialist on the design, initiation, and evaluation of the Malang pilot site.

- Streamline version of the CTTA communication model for dissemination within the MOA and prepare appropriate training materials.

- Take the lead in developing a training and dissemination plan for institutionalizing the communications model within the MOA.

  --conduct a workshop for kabupaten and provincial level officials;

  --visit selected provincial and kabupaten sites to assess local situation and prospective trainees;

  --conduct follow-up visits to selected provinces (1-2) after the training workshop to monitor and support the implementation of the CTTA model by trainees.

- Participate with team members in preparing an annual Integrated Action Plan (IAP) for continuing development and implementation of communication activities and other secondary food crop project activities.

- Participate in selecting and drafting agricultural technology messages for dissemination through the selected communication channels, and in the pretesting of those messages and materials.

- Collaborate, at the provincial level, with SFCDP advisors and their counterparts in studies and activities that contribute to identifying and assessing technologies to be disseminated to farmers through mass media and

conventional extension channels (including private sector channels), taking into consideration the technology's biological and/or other potential and local adaptation; policy, infrastructural, and socioeconomic factors; and farmer characteristics and constraints.

- Assist in institutionalization of the improved communication support program developed and tested in the pilot communication activities, and in its systematic adaptation and expansion to other kabupatens and provinces included in the SFCDP.

- Submit regularly scheduled reports as required to the chief of party and to others as determined jointly.

- Contribute to project reports, documentation and diffusion, and write for professional publications under the project.

Appendix 2

Trip Reports and Publications

Technical Assistance Schedule

Consultants/Authors	Task	Date
1986		
Howard Ray Anthony Meyer	Design for CTTA under SFCD Project	04-25-86
1987		
Howard Ray Edwin Tout	Implementation Plan	04-30-87
1988		
Gail McClure Will Shaw	AED/CTTA Management	06-08-88
Barbara Martin-Schiller	Farm Families Study	11-20-88
1989		
James Mangan	Conference on Communications in Ag.	02-03-89
Peter Croke	Credit Availability	06-20-89
Paul Singleton	Rhizobium Study	06-17-89
Daniel Ajamiseba	Training Needs Assessment	06-30-89
Gerald Williams	Water & Soil Conservation	10-06-89
Barbara Roszel	AED/CTTA Management	12-08-89
Barbara Martin-Schiller	Focus Groups	12-16-89
1990		
Hoky Siregar	Evaluation of Price Information Service	01-26-90
Barbara Roszel	Project Site close-out	04-15-90

Trip Reports

1. *Trip Report on design strategy and implementation plan for agricultural extension and communications under the SFCD Project*, Howard E. Ray and Anthony J. Meyer, March 31 - April 24, 1986.

2. *Trip report on redesign of the SFCD Project, implementation plan and scope of works for long-term technical assistance*, Howard E. Ray and Edwin A. Tout, April 18 - 30, 1987.

3. *AED/CTTA Management Trip Report*, Gail McClure and Will Shaw, May 12 - June 8, 1988.

4. *A Study of Farm Families for The East Java Pilot Project in Agricultural Communications*, for the CTTA/SFCD Project, USAID and Department of Agriculture, Republic of Indonesia, Dr. Barbara L. Martin-Schiller, 16 June - 18 November, 1989, in English and Bahasa Indonesia.

5. *Trip Report On International Conference on Communication in Agriculture*, University of New England, Armidale, Australia, James Mangan, January 30 - February 3, 1989.

6. *Trip Report on Credit Availability*, Peter L. Croke, 28 March - 19 June 1989.

7. *Employing BNF Technology in Indonesia: Assessment of Infrastructures, Manpower, and Research Needs*, Dr. Paul Singleton, 10 May - 17 June, 1989.

8. *Training Needs Assessment*, Dr. Daniel C. Ajamiseba, 15 April - 29 June 1989.

9. *Increase Farm Income by Conserving Soil and Water*, Dr. Gerald G. Williams, 28 June - 6 October 1989, in English and Bahasa Indonesia.

10. *Evaluation of the Price Information Service (PIS) at Secondary Food Crops Marketing Centers within Secondary Food Crops Development Project Areas, In Preparation for a Market Outlook Reporting System*, Hoky Siregar, 1 September 1989 - 26 January 1990.

11. *AED/CTTA Management Report*, Barbara Roszel, 25 November - 7 December, 1989.

12. *Pedoman Kelompok Diskusi Fokus*, Dr. Barbara L. Martin-Schiller, 23 October - 16 December, 1989.

13. *CTTA Project Site Close-out Report*, Barbara Roszel, 7-15 April, 1990.

Publications

1. *Pedoman Kelompok Diskusi Focus,* Dr. Barbara L. Martin-Schiller, December 1989, in English and Bahasa Indonesia.

2. *Socio-Economic Analysis at the Farmer Level for Better Food-Crop Systems, Programs, and Policies,* David W. Brown, March 1990.

3. *Supply & Demand for Food Crops in Indonesia*, Directorate General of Food Crop Economics, January 1988.

4. *Price and Quality of Foodcrops Agriculture in Indonesia*, Secondary Food Crops Development Project, SFCDP-USAID, Directorate General of Foodcrops Agriculture, October 1988.

5. *Indonesia Implementation Plan*, May 1987.

6. *SFCD 497-0304: Life of Project Plans: 1989/90*, USAID/DGFCA, February 1989, Indonesia, in English and Bahasa Indonesia.

7. *Newsbriefs* for Jakarta and Malang from August 1988 to May 1990.

8. *Secondary Food Crops Development Project Extension Terms of Reference for Technical Assistance*, H. Ray and E. Tout, April 1987.

9. *A Study of Farm Families for the East Java Pilot Project in Agricultural Communications: Secondary Food Crops Development Project*, B. Martin-Schiller, January 1989.

10. *The Indonesian Agricultural Communications Pilot*, James Mangan, November 11, 1989.

11. *Agricultural Communications News, No. 1,* CTTA Di Indonesia, September 1989, in English and Bahasa Indonesia.

12. *How Farm Management Analysis can Help to Improve Small Farmer Food-Crop Systems, Programs, and Policies,* David W. Brown, December 6-8, 1989.

13. *Agricultural Communications News, No. 2* CTTA Di Indonesia, January 2, 1990, in English and Bahasa Indonesia.

14. *Agricultural Communications News, No. 3* CTTA Di Indonesia, April 1990, in English and Bahasa Indonesia.

15. *Pagak photonovel*, (red = Bahasa Indonesia; blue = Javanese; photocopies = English), 1989.

16. *Tumpang photonovel*, (orange = Bahasa Indonesia; green = Javanese; photocopies = English), 1989.

17. *Calendars*, 1990.

18. Poster - *Teaspoon Measures*, 1990.

19. Poster - *Budidaya Tanaman Kedelai.*

20. Poster - *Hama Tanaman Kedelai dan Musuh Alaminya.*

21. Brochure - *Hama dan Penyakit Kedelai.*

Appendix 3
Vehicles and Equipment Purchased

Communication for Technology Transfer in Agriculture (CTTA) Project
Contract No. DPE-5826-C-00-5054-00

Procurement for CTTA Project in Indonesia

Description	Total Equipment Dollar Amount
Office Furniture	1,170.01
One air conditioner	932.84
Two personal computers, two printers, one typewriter, diskettes, manuals, ribbons, etc.	6,858.69
Computer, printer, and supplies	2,701.49
Two Toyota Kijang Vehicles	16,805.23
One national multi split air conditioner	2,572.87
One computer, printer, software and one fan	2,096.87
Two Daihatsu Vehicles	28,729.60
One Magnabyte laptop computer and interface	2,622.38
Two laptop "Spark II" computers & two external disk drives	6,088.45
One Daihatsu Vehicle	14,664.76
One Mitsubishi air conditoner	1,391.23
Total	86,634.42

Appendix 4
Financial Statement

Communication for Technology Transfer in Agriculture (CTTA) Project
Contract No. DPE-5826-C-00-5054-00

Summary of Expenditures for Technical Services to Indonesia
From February 1988 to April 1990

Category	Central	Mission	Total
1. Salaries	21,999	591,467	613,466
2. Benefits	5,546	155,416	160,962
3. Consultant Fees		82,061	82,061
4. Travel & Transportation	3,398	170,941	174,339
5. Other Direct Costs	3,033	171,568	174,601
6. Indirect Costs	9,511	331,161	340,672
7. Allowances	5,999	288,554	294,553
8. Equipment & Shipment		86,387	86,387
9. Subcontract	292	4,318	4,610
10. Subcontract G&A	5	86	91
GRAND TOTAL	49,783	1,881,959	1,931,742

* Estimated Final Accounting